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Enzymatic Remediation in Standard Crude Palm Oil for Superior Quality Oil

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Abstract : Enzymatic remediation is applied in low free fatty acid (FFA) (<4%) crude palm oil (CPO) to investigate if further FFA reduction is able to take place to produce premium CPO (<1% FFA). There are four different lipase Candida Antartica brands used in this study. Samples submit to enzymatic remediation using rotary evaporator under 100mbar vacuum with rotation at 260rpm. Samples were taken at 4hours, 8hours and 24hours for analyses. FFA less than 1% was achieved after 24hours reaction with 1% enzyme and 2% glycerol. The FFA reduction was intensified with the presence of glycerol who provides more sites for fatty acid attachment. At 2% glycerol, 71-88% FFA was reduced whereas at 1% glycerol, 46-75% FFA reduced. However, partial glycerides was increased with presence of glycerol with 2% add in glycerol showed greater partial glycerides increment compared to 1% glycerol.

Keywords : enzymes, crude palm oil, free fatty acid, glycerol
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